Amendments to the Claims:

Please amend the claims as set forth hereinafter.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A sensor comprising

a cantilever ~~(3), wherein~~ having a position ~~of the cantilever (3) depends on a parameter to be measured~~,

a first mirror being arranged on said cantilever,

an optical resonator ~~(15) formed between two reflecting~~ mirrors, ~~wherein a first mirror is arranged on said cantilever (3) and wherein~~ having a length ~~of said resonator (15) depends~~ that is dependent on the position of the cantilever ~~(3),~~

~~characterized by~~

a lens assembly ~~(10)~~ for ~~focussing~~ focusing light onto the cantilever and ~~(3), said lens assembly (10)~~ having an output surface ~~(12b)~~ facing the cantilever ~~(3)~~,

wherein

the position of the cantilever depends on a parameter to be measured,

said output surface ~~(12b)~~ is concave and forms a second mirror ~~of said resonator (15)~~, and

said resonator is formed between said first and second mirror.

2. (Currently Amended) The sensor of claim 1 wherein said output surface ~~(12b)~~ is substantially parallel to impinging wavefronts of a standing optical wave within said resonator ~~(15)~~.

3. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said lens assembly ~~(10)~~ comprises an output lens having a convex first face ~~(12a)~~ and a concave second face ~~(12b)~~, wherein said second face ~~(12b)~~ forms said ~~exit~~ output surface.

4. (Currently Amended) The sensor of claim 3 wherein said lens assembly ~~(10)~~ comprises an input lens ~~(11)~~ for projecting a divergent incoming light field ~~(9)~~ onto said output lens.

5. (Currently Amended) The sensor ~~any of the preceding claims~~ of claim 1 further comprising an optical fiber ~~(8)~~ wherein said lens assembly ~~(10)~~ projects an end ~~(8b)~~ of said optical fiber ~~(8)~~ onto said cantilever ~~(3)~~.

6. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said output surface ~~(12b)~~ is coated with a reflective coating.

7. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said cantilever ~~(3)~~ is coated with a reflective coating.

8. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said light is not broken at the output surface ~~(12b)~~.

9. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said cantilever ~~(3)~~ is a lever being fixed at a first end and ~~deviatable~~ deflectable at a second end.

10. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said resonator has a loss of less than 20% per round trip.

11. (Currently Amended) ~~The lens assembly of any of the preceding claims~~ The sensor of claim 1 wherein said lens assembly is mounted to a positioning device for positioning a light spot on different parts of the cantilever.

12. (Currently Amended) A scanning force microscope ~~with~~ comprising the sensor of ~~any of the preceding claims~~ claim 1.